Air Quality Permitting
Technical Memorandum

TIER II Operating Permit and Permit to Construct No. 777-00140

BANNOCK PAVING CO., INC.
POCATELLO, IDAHO

Prepared By:

Kent Berry
Environmental Quality Management, Inc.

Project No. T2-010317

Date Prepared:

September 17, 2002

Permit Status:

FINAL PERMIT

TABLE OF CONTENTS

ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
Bannock	Bannock Paving Co., Inc.
CO	carbon monoxide
DEQ	Department of Environmental Quality
EQM	Environmental Quality Management, Inc.
HAPS	hazardous air pollutants
IDAPA	A numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb/hr	pounds per hour
MACT	Maximum Achievable Control Technology
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_x	nitrogen oxides
NSPS	New Source Performance Standards
PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
SIP	State Implementation Plan
SM	synthetic minor
SO_2	sulfur dioxide
TAP	toxic air pollutant
T/hr	tons per hour
T/yr	tons per year
VOC	volatile organic compound

PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01 Sections 200 et seq. and 404, *Rules for the Control of Air Pollution in Idaho,* for Permits to Construct and Tier II operating permits.

PROJECT DESCRIPTION

Bannock Paving Co. Inc. (Bannock), located in Pocatello, Idaho, has requested revision of their Tier II operating permit originally issued September 11, 1998, to allow combustion of waste oil and remediation of petroleum contaminated soil. Conditions have been added to the permit to deal with waste oil quality, limit the amount of contaminated soil processed, and standardize the permit according to the Department's current permitting format. There have been no physical changes at the facility that would affect facility emissions. The emissions sources at the facility are as follows:

Table 1.1 FACILITY EMISSION SOURCES

Permit Section	Source Description	Emissions Controls
3	Hot mix asphalt plant dryer, Cedarapids drum mix, 450-T/hr capacity	Standard Havens baghouse, Model: Alpha Mark III

FACILITY DESCRIPTION

The description of this facility and the equipment regulated in the permit have not changed since the issuance of the original Tier II operating permit in 1998. For facility and equipment descriptions, refer to the technical memorandum dated September 11, 1998, written by Yihong Chen, DEQ Air Quality Engineer.

SUMMARY OF EVENTS

September 17, 2001	DEQ received a request from Bannock to revise their Tier II operating permit to allow waste oil to be burned in the dryer.
March 4, 2002	DEQ deemed the application complete.
April 16, 2002	DEQ received a revised application requesting that the facility be permitted to use petroleum contaminated soil.
June 26, 2002	DEQ issued a draft permit for facility review.
July 29, 2002	DEQ issued a proposed permit for public comment.
September 5, 2002	The public comment period closed. There were no public comments.

PERMIT HISTORY

The following is a summary of the permit files available to EQM:

September 11, 1998	A Tier II operating permit was issued that limited the facility to Synthetic Minor status for purposes of Tier I permitting.

DISCUSSION

1. Emissions Estimates

The emission calculations for criteria air pollutants (worst-case is still residual fuel oil) have not changed since the issuance of the Tier ii permit on September 11, 1998. For emission estimate information for this facility, refer to the technical memorandum dated September 11, 1998, written by Yihong Chen, DEQ Air Quality Engineer. Toxic air pollutant emissions are presented in the appendix.

2. Modeling

Modeling results for the criteria air pollutants as presented in the September 11, 1998, technical memorandum by Yihong Chen are still valid. The applicant conducted a SCREEN3 modeling analysis for TAPs for the asphalt dryer using waste oil and remediated soil; the results and SCREEN3 output files are presented in the appendix.

In most cases, the AP-42 TAP emission factors for No. 2 fuel oil and waste oil are the same, therefore, for those pollutants there is no emission increase requiring a TAP analysis. For the few TAPs with new or increased emissions from burning waste oil, all were either below the emission screening levels or the acceptable ambient concentrations in IDAPA 58.01.01.585 or 586. Benzene emissions from soil remediation resulted in the need for contaminated soil throughput and concentration limits in order to meet the acceptable ambient concentrations for benzene in IDAPA 58.01.01.586.

3. Facility Classification

The hot-mix plant is not a major facility as defined in IDAPA 58.01.01.006.55 or 008.10. It is not a designated facility as defined in IDAPA 58.01.01.006.27. The facility is classified as a SM source because actual and potential emissions of regulated air pollutants are less than 100 T/yr only if it complies with the federally-enforceable emission limits in the permit.

4. Regulatory Review

This permit is subject to the following permitting requirements:

a.	IDAPA 58.01.01.401	Tier II Operating Permit
b.	IDAPA 58.01.01.403	Permit Requirements for Tier II Sources
c.	IDAPA 58.01.01.404.01(c)	Opportunity for Public Comment
d.	IDAPA 58.01.01.404.04	Authority to Revise or Renew Operating Permits
e.	IDAPA 58.01.01.406	Obligation to Comply
f.	IDAPA 58.01.01.470	Permit Application Fees for Tier II Permits
g.	IDAPA 58.01.01.585 and 586	Toxic Air Pollutant Increments
h.	IDAPA 58.01.01.625	Visible Emission Limitation
i.	IDAPA 58.01.01.650	General Rules for the Control of Fugitive Dust
j.	IDAPA 58.01.01.725	Rules for Sulfur Content of Fuels
k.	40 CFR 60, Subpart I	NSPS for Asphalt Concrete Plants
l.	40 CFR 279	Standards for the Management of Used Oil
m.	IDAPA 58.02.02 200 et seq	Requirements for Permits to Construct

5. Permit Conditions

All conditions from the September 11, 1998, Tier II permit, including the asphalt dryer throughput limits, have been retained. Additional conditions on used oil contaminants and sulfur content, as requested by the applicant, have been added. Throughput and gasoline concentration limits for contaminated soils, as requested by the applicant, have also been added. Finally, mass emission limits (lb/hr and T/yr) have been added for the asphalt dryer for each pollutant with potential emissions exceeding 10% of the significant emission rates at IDAPA 58.01.01.006.92. Compliance with the throughput and fuel sulfur limits will ensure compliance with the emission limits.

No emission limit or source test for benzene is required because compliance with the AACC for benzene was demonstrated based on reasonable worst-case conditions concerning benzene concentration in gasoline and benzene destruction efficiency. The requested annual throughput limit for petroleum contaminated soils and the gasoline concentration will ensure compliance with the annual benzene AACC (no short-term throughput limit is necessary).

No additional testing requirement for PM from the asphalt plant dryer was added to the previously-issued permit. The dryer was tested in 1997 and was well below the allowable limit of 0.04 gr/dscf. If visible emissions or other information indicate that the PM limits for the dryer may be exceeded, the Department may exercise its authority under IDAPA 58.01.01.121.04 to require the facility to conduct a performance test to demonstrate compliance.

6. AIRS

AIRS/AFS FACILITY-WIDE CLASSIFICATION[a] DATA ENTRY FORM

AIR PROGRAM / POLLUTANT	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	TITLE V	AREA CLASSIFICATION A – Attainment U – Unclassifiable N – Nonattainment
SO_2	SM					SM	A
NO_x	SM					SM	U
CO	SM						U
PM_{10}	SM		SM			SM	U
PM (Particulate)	SM					SM	A
VOC	B						U
THAP (Total HAPs)	NA						NA
			APPLICABLE SUBPART				
			I				

[a] *AIRS/AFS Classification Codes:*

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For NESHAP only, class "A" is applied to each pollutant which is below the 10 T/yr threshold, but which contributes to a plant total in excess of 25 T/yr of all NESHAP pollutants.

SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.

B = Actual and potential emissions below all applicable major source thresholds.

C = Class is unknown.

ND = Major source thresholds are not defined (e.g., radionuclides).

FEES

Fees apply to this facility in accordance with IDAPA 58.01.01.470. The facility is subject to Tier II operating permit application fees of $500, which were paid at the time of application.

RECOMMENDATIONS

Based on the review of the application materials and all applicable state and federal regulations, staff recommends DEQ issue a final Tier II operating permit and PTC to Bannock Paving Co. A public comment period on the air quality aspects of the proposed permit was provided in accordance with IDAPA 58.01.01.404.01.c.

KB/MS:sm

G:\AIR QUALITY\STATIONARY SOURCE\SS LTD\T2\BANNOCK PAVING\FINAL\BANNOCK FINAL TECH MEMO.DOC

cc: Kent Berry, EQM
Tiffany Floyd, Pocatello Regional Office
Joan Lechtenberg, Air Quality Division

APPENDIX

TOXIC AIR POLLUTANT EMISSIONS AND MODELING RESULTS

Emissions Analysis for Non-Carcinogenic Pollutants

Pollutant	Oil Type	Emission Factor, lb/ton	Generator Emission Factor, lb/MMBtu	Soil Remediation Emission Factor, lb/ton	Actual, lb/hr	EL Standard, lb/hr	Modeled 24 hr. Ambient Conc., ug/m^3	AAC, ug/m^3 (24 Hour average)	Modeling Required?	Meet AAC?
Acetone	Waste Oil	0.00083			3.74E-01	1.33	4.84E-01	1,000	N	Y
Acrolein	Waste Oil	2.6E-05	7.88OE-06		1.18E-02	0.017	1.57E-02	13	N	Y
Antimony	#2 & Waste Oil	1.80E-07			8.10E-05	0.033	1.05E-04	25	N	Y
Barium	#2 & Waste Oil	5.80E-06			2.61E-03	0.033	3.38E-03	25	N	Y
Chromium	#2 & Waste Oil	5.50E-06			2.48E-03	0.033	3.21E-03	25	N	Y
Cobalt	Waste Oil	2.60E-10			1.17E-07	0.0033	1.52E-07	3	N	Y
Copper	Waste Oil	3.10E-06			1.40E-03	0.013	1.81E-03	10	N	Y
Crotonaldehyde	Waste Oil	8.6E-05			3.87E-02	0.38	5.02E-02	285	N	Y
Ethylbenzene	#2 & Waste Oil	0.00024			1.08E-01	29	1.40E-01	21,750	N	Y
Soil Remediation				2.3528E-01	1.06E+02	29	1.37E+02	21,750	Y	Y
Heptane	#2 & Waste Oil	9.40E-03			4.23E+00	109	5.48E+00	82,000	N	Y
Hexane	#2 & Waste Oil	0.00092			4.14E-01	12	5.37E-01	9,000	N	Y
Manganese	#2 & Waste Oil	7.7E-06			3.47E-03	0.067	4.49E-03	50	N	Y
Mercury	#2 & Waste Oil	2.6E-06			1.17E-03	0.0001	1.52E-03	1	Y	Y
Methyl Chloroform	#2 & Waste Oil	4.8E-05			2.16E-02	127	2.80E-02	95,500	N	Y
Methyl Ethyl Ketone	Waste Oil	2E-05			9.00E-03	0.007	1.17E-02	6	Y	Y
Naphthalene	#2 & Waste Oil	0.00065	1.30E-04		2.94E-01	3.33	3.88E-01	2,500	N	Y
Pentane	#2 & Waste Oil	2.10E-04			9.45E-02	0.033	1.22E-01	25	Y	Y
Phosphorous	#2 & Waste Oil	2.80E-05			1.26E-02	0.007	1.63E-02	5	Y	Y
Propionaldehyde	Waste Oil	0.00013			5.85E-02	0.0267	7.58E-02	22	Y	Y
Quinone	Waste Oil	0.00016			7.20E-02	0.027	9.33E-02	20	Y	Y
Selenium	#2 & Waste Oil	3.50E-07			1.58E-04	1.30E-02	2.04E-04	10	N	Y
Silver	#2 & Waste Oil	4.80E-07			2.16E-04	0.007	2.80E-04	5	N	Y
Thallium	#2 & Waste Oil	4.10E-09			1.85E-06	0.007	2.39E-06	5	N	Y
Toluene	#2 & Waste Oil	0.0029	2.81E-04		1.31E+00	25	1.71E+00	18,750	N	Y
Soil Remediation			2.81E-04	6.0072E-01	2.70E+02	25	3.50E+02	18,750	Y	Y

Emissions Analysis for Non-Carcinogenic Pollutants

Pollutant	Oil Type	Emission Factor, lb/ton	Generator Emission Factor, lb/MMBtu	Soil Remediation Emission Factor, lb/ton	Actual, lb/hr	EL Standard, lb/hr	Modeled 24 hr. Ambient Conc., ug/m³	AAC, ug/m³ (24 Hour average)	Modeling Required?	Meet AAC?
Valeraldehyde	Waste Oil	6.7E-05			3.02E-02	11.7	3.91E-02	8,750	N	Y
Xylene	#2 & Waste Oil	0.0002	1.93E-04		9.25E-02	29	1.30E-01	21,750	N	Y
Soil Remediation			1.93E-04	8.0096E-01	3.60E+02	29	4.67E+02	21,750	Y	Y
Zinc	#2 & Waste Oil	6.10E-05			2.75E-02	0.667	3.58E-02	500	N	Y

Source: AP-42, 12/00, Tables 11.1-10 and 11.1-12 and AP-42, 10/96, Table 3.4-3 and 3.4-4.
HK Tech Memo, June 28, 1999
For soil remediation: 50% control with petroleum concentration at 5,000 mg/kg

Emissions Analysis for Carcinogenic Pollutants

Pollutant	Oil Type	HMA Emission Factor, lb/ton	Generator Emission Factor, lb/MMBtu	Soil Remediation Emission Factor, lb/ton	Actual, lb/hr	EL Standard, lb/hr	Modeled Annual Ambient Conc., ug/m³	AACC, ug/m³ (annual average)	Modeling Required?	Meet AACC?	Annual Hours of Operation to Meet AACC or EL	Annual Tonnage Limit to Meet AACC	Annual Tonnage Limit to Meet 1E-5 Cancer Risk
Acetaldehyde	Waste Oil	0.0013	2.52E-05		5.85E-01	3E-03	2.37E-01	9.5E-01	Y	Y			
Arsenic	#2 & Waste Oil	5.80E-07			2.52E-04	1.58E-06	1.02E-04	2.30E-04	Y	Y			
Benzene	#2 & Waste Oil	0.00039	7.76E-04		1.86E-01	8.0E-04	8.75E-02	1.2E-01	Y	Y			
Soil Remediation			7.76E-04	1.00E-01	4.51E+01	1.0E+00	1.84E+01	1.2E-01	Y	N	195	87,845	
Benzo(a)pyrene	#2 & Waste Oil	9.8E-08	2.570E-07		7.73E-06	2E-06	7.23E-06	3E-04	Y	Y			
Beryllium	#2 & Waste Oil	0.00E+00			0.00E+00	2.80E-05	0.00E+00	0.0042	N	Y			
Beryllium	#2 & Waste Oil				0.00E+00	9.10E-05	0.00E+00	1.40E-02	N	Y			
Cadmium	#2 & Waste Oil	4.10E-07			1.55E-04	0.0000037	7.47E-05	5.6E-04	Y	Y			
Dioxin	#2 & Waste Oil	3.64E-10			1.64E-07	1.50E-10	6.63E-08	2.2E-08	Y	N	2,908	1,306,315	13,086,155
Formaldehyde	#2 & Waste Oil	3.1E-03	7.890E-05		1.40E+00	5.1E-04	5.67E-01	7.7E-02	Y	N	1,190	535,697	5,356,670
Hexavalent Chromium	#2 & Waste Oil	4.5E-07			2.03E-04	5.6E-07	8.20E-05	8.20E-05	Y	Y			
Nickel	#2 & Waste Oil	6.30E-05			2.84E-02	2.70E-05	1.15E-02	4.20E-03	Y	N	3,204	1,441,975	14,419,753
PAH	#2 & Waste Oil	0.00066	2.12E-04		3.98E-01	9.10E-05	1.65E-01	1.40E-02	Y	N	744	334,732	3,347,325
	#2 & Waste Oil	0.00068			3.96E-01	9.10E-05	1.60E-01	1.40E-02	Y	N	765	344,106	3,441,077
POM	#2 & Waste Oil	6.47BE-07	4.497E-06		3.05E-04	2E-06	1.95E-04	3E-04	Y	Y			

Source: AP-42, 12/00, Tables 11.1-9, 11.1-10 and 11.1-12, and AP-42, 10/96 Tables 3.4-3 and 3.4-4.
HK Tech Memo, June 28, 1999
For soil remediation: 50% control with petroleum concentration at 5,000 mg/kg
Note: Because this is a Tier II operating permit, pre-existing toxic emissions must demonstrate a 1E-5 cancer risk.
(Based on conversations with IDEQ).

Lead Emissions

Emission Factor, lb/ton	Actual Emission Rate, tons/year	Significant Level	Actual Ambient Concentration, hourly, ug/m^3	Actual Ambient Concentration, quarterly, ug/m^3	Ambient Concentration Standard, Quarterly
1.50E-05	0.03	0.6	0.02187	0.00492075	1.5
lb/ton	tons/yr	ton/yr	ug/m^3	ug/m^3	ug/m^3

Source: AP-42, 12/00, Tables 11.1-10 and 11.1-12.

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 ***  SCREEN3 MODEL RUN  ***
 *** VERSION DATED 96043 ***

Bannock HMA

SIMPLE TERRAIN INPUTS:
   SOURCE TYPE               =        POINT
   EMISSION RATE (G/S)       =      .126000
   STACK HEIGHT (M)          =     11.8900
   STK INSIDE DIAM (M)       =      1.5700
   STK EXIT VELOCITY (M/S)=        8.1412
   STK GAS EXIT TEMP (K)     =    400.2000
   AMBIENT AIR TEMP (K)      =    293.0000
   RECEPTOR HEIGHT (M)       =      .0000
   URBAN/RURAL OPTION        =       RURAL
   BUILDING HEIGHT (M)       =      .0000
   MIN HORIZ BLDG DIM (M)    =      .0000
   MAX HORIZ BLDG DIM (M)    =      .0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

   STACK EXIT VELOCITY WAS CALCULATED FROM
   VOLUME FLOW RATE =   33395.000      (ACFM)

BUOY. FLUX =   13.178 M**4/S**3;  MOM. FLUX =   29.902 M**4/S**2.

*** FULL METEOROLOGY ***

************************************
*** SCREEN AUTOMATED DISTANCES ***
************************************

 *** TERRAIN HEIGHT OF     0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES
***
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DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	.0000	1	1.0	1.0	320.0	158.29	2.18	2.14	NO
100.	.3116	3	10.0	10.2	3200.0	24.26	12.67	7.79	NO
200.	2.837	4	20.0	20.5	6400.0	15.64	15.67	8.69	NO
300.	3.111	4	20.0	20.5	6400.0	15.64	22.70	12.27	NO
400.	2.795	4	15.0	15.4	4800.0	18.47	29.58	15.51	NO
500.	2.507	4	10.0	10.3	3200.0	24.11	36.38	18.76	NO
600.	2.261	4	10.0	10.3	3200.0	24.11	42.92	21.61	NO
700.	2.067	4	8.0	8.2	2560.0	28.34	49.46	24.58	NO
800.	1.870	4	8.0	8.2	2560.0	28.34	55.81	27.27	NO
900.	1.684	4	5.0	5.1	1600.0	40.77	62.43	30.60	NO

1000.	1.613	4	5.0	5.1	1600.0	40.77	68.62	33.14	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:

259.	3.204	4	20.0	20.5	6400.0	15.64	19.93	10.88	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
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CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	3.204	259.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

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*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***